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# Different PD calibration philosophies in terms of cyclitality

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# Abstract

The main goal of the thesis was to introduce the purpose of banking regulations, which an institution needs to fulfill in order to operate and show how one of the main risk parameter can be quantified. We generated our data based on economic conditions and built a model, which estimates the PD parameter, based on different regulations. These regulations are defined by Basel I. and EBA in order to avoid financial crisis. We showed different calibration methods, from which banks can choose to quantify the PD parameter in order to calculate the required capital. During the process we showed different numerical methods, which one can use to calibrate estimated PD to the target and used least squared error to minimize the difference between target and estimated PD. We presented in details the steps of best practice and managed to recreate the different calibration methods, from which the most important one is TtC (Through-the-Cycle) philosophy. To analyse the models behaviour we created different scenarios and concluded, that TtCB calibration method is more stable than TtCC. On the other hand we analysed how the two methods react to economic changes if the implementation is as close to reality as possible, therefore we measured the cyclicity in both cases. After analysing the time series, with the help of different statistical tests we proved our hypothesis, which was that TtCC is less cyclical, sensitive to economic changes if the calibration doesn't happen frequently enough. The main results are the presented calibration methods and the conclusion that institutions should analyse the effect of cyclicity and consider these properties, when choosing a calibration philosophy.